CONVOLVULUS CARRII, A LOCALIZED ENDEMIC FROM SOUTHERNMOST TEXAS

B. L. Turner
Plant Resources Center
The University of Texas at Austin
Austin, Texas 78712
billie@uts.cc.utexas.edu

ABSTRACT

A new *Convolvulus* species is described from fine Holocene sands in southern Texas: ***Convolvulus carrii* B. L. Turner, sp. nov.** The ecology and possible speciation is discussed. *Phytologia 91(3): 394-400 (December, 2009).*

KEY WORDS: *Convolvulus carrii*, *Convolvulus equitans*, taxonomy.

Routine identification of Texas plants has revealed the following novelty:

CONVOLVULUS CARRII B.L. Turner, **sp. nov. Figs. 1, 2**
Convolvulus equitati Benth., similis sed differt foliis incrassitis valde venosis dense argento-pilosis et seminibus laevibus vel paene laevibus (vs papillosis).

Prostrate perennial or twining vine. **Stems** densely pilose with silvery hairs, the vestiture ca 1 mm high. **Leaves** 3-7 cm long, 2-3 cm wide, pubescent like the stems; petioles 1.0-2.5 cm long; blades thickened subhastate to subcordate, markedly venose, the margins irregularly dentate. **Flowers** mostly solitary (rarely not) on bracteate peduncles 5-7 cm long. **Sepals** 5, subequal, 9-11 mm long, their apices broadly rounded and minutely apiculate. **Corollas** white, ca 3 cm long, ca 4 cm across the extended petals, the throat "maroon" or wine-colored," occasionally not. **Stamens** 5, the anthers ca 4 mm long. **Styles** ca 2 cm long; the shafts glabrous, or rarely pilose at the apex

(*Correll & Correll 38844*), the linear branches ca 2 mm long. **Seeds** 3-5 mm long, ca 2mm wide, smooth or nearly so.

TYPE: **U.S.A. TEXAS: HIDALGO Co.,** East side of Hwy 181, 7 mi N of San Miguel in deep, finely grained, white-sandy soils.

Prostrate perennials arising from ligneous roots, the stems up to 8 ft long; corollas white with a purple eye at base of throat. At least 6 very uniform populations were seen over a ½ mi stretch of the highway (6.5-7.0 mi N of San Miguel), 20 Apr 2009, *Billie L. Turner & Jana Kos 09-03* (Holotype: TEX; isotypes, to be distributed).

After the above observations, my colleagues, Richardson and King visited the type locale a second time and noted that while most of the populations had the typical purple centers, "2 or 3 of them had much smaller purple centers, and 3 or 4 of them were all white." Nevertheless, the syndrome of characters (described below) appears to hold for most of the populations concerned, and I still believe the taxon worthy of specific rank, the character perturbations not withstanding.

ADDITIONAL SPECIMENS EXAMINED: **U.S.A.: Brooks Co.,** S side of R. M. 755, ca 3.6 road-miles NE of Starr County line, "locally common in sparse vegetation on fine sand...on level upland underlain by eolian sand of Holocene," 26 47 45.4 N, 98 23 31.9 W, 230-240 ft, 9 Apr 2008, *W.R. Carr 26646* [with D. Benish] (TEX); several mi SE of Falfurrias, "near gypsum quarry," 10 Jul 1957, *Correll & I.M. Johnston 17811* (LL); 6 mi S of Falfurrias, 4 Jun 1970, *D.S. & Helen Correll 38884* (LL). **Hidalgo Co.,** northern part of county along highway 281, 15 Oct 2005, *Richardson & King 3337* (TEX); "Hwy 281, northbound, 7.0 miles north of intersection with hwy 186," 15 Nov 2008, *Richardson & King 3397* (TEX); same as previous location, 22 Mar 2009, *Richardson & King 3405* (TEX); "north edge of Hidalgo Co.," 16 Jul 1925, *Runyon 890* (TEX); near San Manuel along highway 281, 4 May 1941, *Runyon 2627* (TEX).

The novelty is closely similar to *Convolvulus equitans* but can be distinguished by a syndrome of characters, including thickened, markedly venose, silvery-pubescent, markedly dentate, deltoid leaves (vs thin, sparsely pubescent, and highly variable as to shape and marginal dentation); flowering peduncles 5-7 cm long (vs. shorter);

large white corollas with maroon or purplish throats, rarely not (vs. smaller and white to pale pink, the purple throats only rarely present); and seed coats smooth or nearly so (vs. mostly papillose). The smooth seeds of *C. carrii* are especially striking, this not observed in the large number of collections of *C. equitans* from southern-most Texas on file at LL-TEX, although nearly smooth seeds may occur elsewhere over the range of the species.

Because of the extraordinary fact that only two species of *Convolvulus* are native to North America, one reviewer of the present paper suggested that *C. carrii* might be an introduced species, either of *Convolvulus* or the closely related *Calystegia*. The relatively large flowers suggest the latter, but the slender style branches and yet other characters are clearly those of *Convolvulus*. Indeed, Correll, Runyon, and yet other knowledgeable taxonomists, have identified the plants concerned as *C. equitans*, in spite of the combination of characters that mark the species.

Might the taxon be an exotic introduction to southern Texas? Not, in my opinion, since it is confined to a particular sand type, and is remarkably uniform from population to population over the area concerned. I have also examined a large suite of specimens of *Convolvulus* and *Calystegia* from throughout the world on file at LL-TEX and could detect no close fits.

My own conjecture as to its origin follows: the fine Holocene sands, to which it seems confined, are derived from ancestral dunes, estimated at ca 10,000 years old (Carr, 2009). Over this time the characters of *C. carrii* must have evolved out of the more widespread, highly variable *C. equitans*. In short, a combination of characters selected out of *C. equitans*, with the evolution of yet others affecting its reproductive success, led to its existence. Verification must await DNA and experimental studies.

According to label-data (*Carr 26646*), and personal observation, *C. carrii* is a prostrate perennial or else found "climbing over shrubs" (*Correll & Johnston 17811*). Carr states that the taxon is locally common on deep eolian sands of the Holocene.

The type locality site was called to my attention by Al Richardson, for which I am most grateful. In spite of the seemingly regional drought at the time, plants at this locality were vigorous and in full flower. Interestingly, no plants of *C. equitans* were found in the deep sandy soils to which *C. carrii* is restricted, although it is exceedingly common elsewhere in the state of Texas and Mexico (Figs. 2, 3). Similar sandy soils of the Holocene reportedly occur in adjacent Kenedy Co., and it is likely that the novelty will be found to occur in that area as well.

The novelty is named for William R. Carr, exceptional botanical systematist working for the Nature Conservancy of Texas, who first called my attention to the plants concerned.

ACKNOWLEDGEMENTS

I am grateful to Guy Nesom for the Latin diagnosis; he also reviewed the paper, for which I am grateful. Al Richardson, My Academic Son (having obtained his doctorate under my supervision in 1975) and his close field companion, Ken King, provided considerable input into the venture, especially in the procurement of mature seeds. Jana Kos was a field companion during my own study of the plants concerned, having to tolerate an excess of ohs and ahs upon seeing this or that population.

LITERATURE CITED

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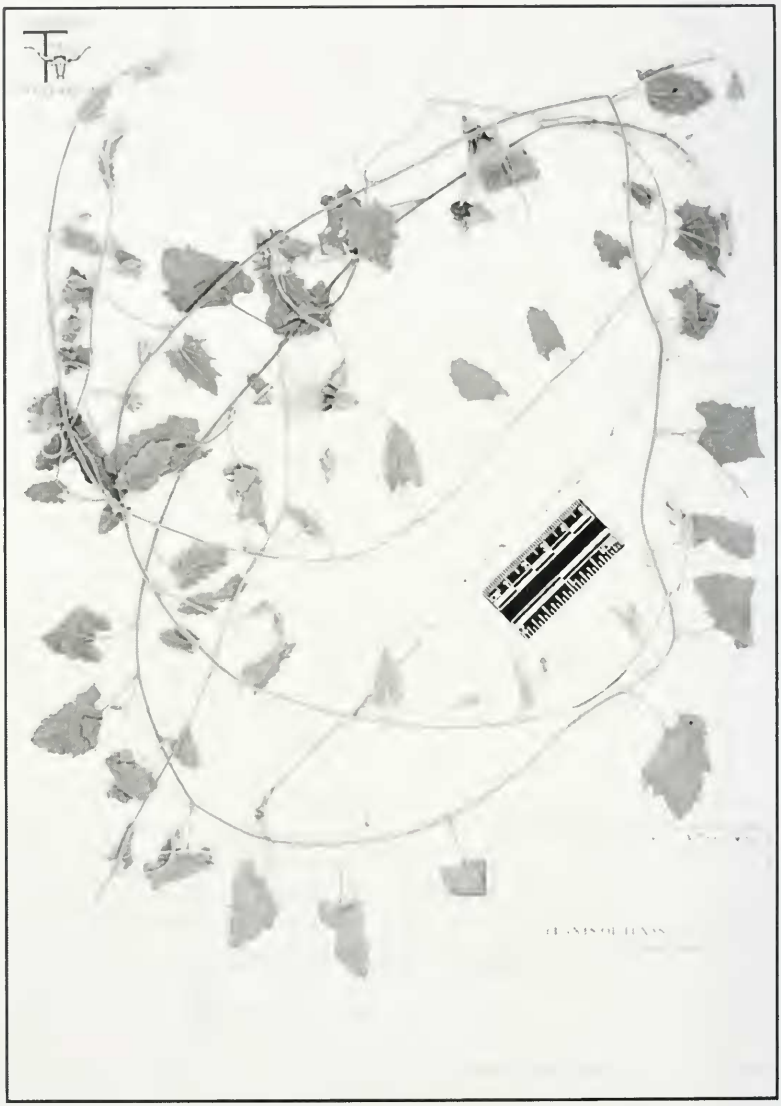

Fig. 1. *Convolvulus carrii* (holotype).

Fig. 2. Field plants of *C. carrii* (*Carr 26646*, TEX).

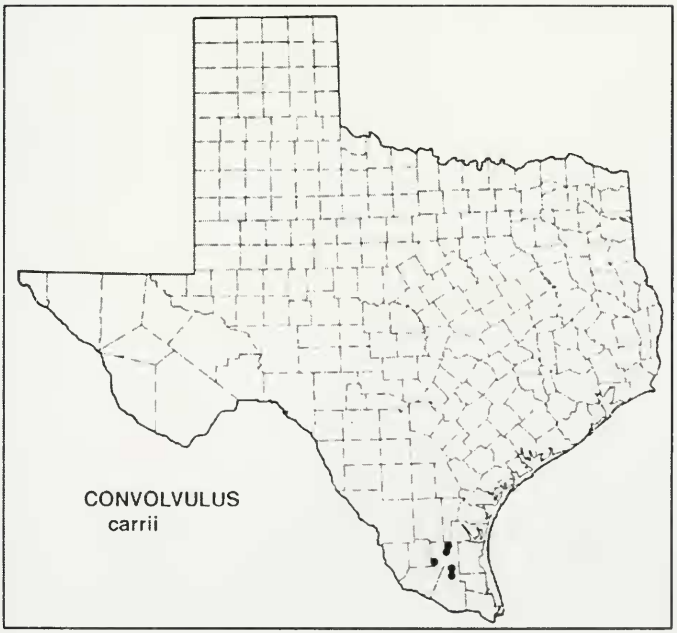

Fig. 3. Distribution of *C. carrii*.

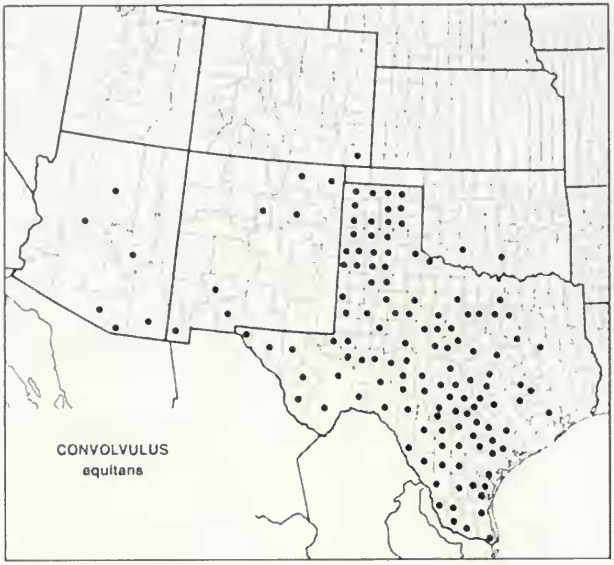

Fig.4. Distribution of *C. equitans* in Texas (based upon specimens at SRSC and LL-TEX).

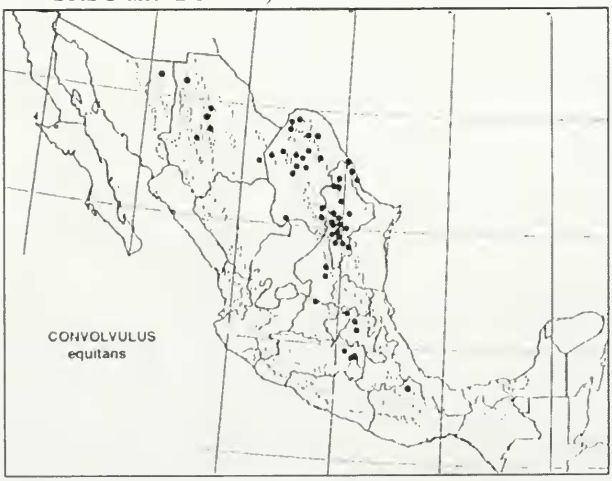

Fig. 5. Distribution of *C. equitans* in Mexico (based upon specimens at LL-TEX).